

## How to Manage Pests

# UC Pest Management Guidelines

| [All grape pests](#) | [All crops](#) | [About guidelines](#) |

## Grape

### Birds

#### Scientific Names:

**American robin:** *Turdus migratorius*

**Crow:** *Corvus brachyrhynchos*

**Crowned sparrow:** *Zonotrichia* spp.

**European starling:** *Sturnus vulgaris*

**House finch:** *Carpodacus mexicanus*

**House sparrow:** *Passer domesticus*

**Scrub-jay:** *Aphelocoma californica*

(Reviewed 7/16, updated 7/16)



In this Guideline:

- [Description of the pest](#)
- [Publication](#)
- [Damage](#)
- [Glossary](#)
- [Management](#)

## DESCRIPTION OF THE PEST

Several bird species may cause serious problems in grape production in California.

### American robin

The American robin is commonly observed on lawns looking for earthworms or found in gardens and landscapes feeding on fruits and berries. It is about 10 inches long with an orange-red breast, grey to brown upper parts, white throat, and a dark brown to black head and tail.

The American robin is a migratory nongame bird and can only be lethally removed with a depredation permit from the U.S. Fish and Wildlife Service or under supervision of the local county agricultural commissioner.

### Crow

The [crow](#) is chunky, black, 17 to 21 inches long with a thick, black bill and feet. They are easy to recognize by their loud *caw caw caw* sound. Crows are gregarious and often feed in large numbers, moving from orchard to orchard.

California Fish and Wildlife regulations allow crows to be taken only by landowners or tenants, or by persons authorized in writing by such landowners or tenants, when crows are committing or about to commit depredations (damage to crops).

### European starling

[Starlings](#) are dark colored birds with light speckling on the feathers. They are about 7 1/2 to 8 1/2 inches long with a short tail. They have a long, slender yellow bill in summer and a dark one during the winter. Starlings have a wide habitat range but prefer areas with trees. If their excrement or droppings contact the fruit, it will cause unsightly blemishes and may transmit diseases.

Starlings are an invasive, exotic species and can be lethally removed at any time.

### House finch

[House finches](#) are highly adapted to human environments. House finches are typically 5 to 6 inches long and feed in small flocks. Male finches have a rosy-red or orange head, rump, and breast with brownish wings and back, and a brown streak on their sides. Females have the brown body and wings, but lack the red or orange coloration.

House finches are migratory, nongame birds, and can only be lethally removed with a depredation permit from the U.S. Fish and Wildlife Service or under supervision of the local county agricultural commissioner.

## Scrub-jay

Scrub-jays are aggressive birds, 10 to 12 inches long, and are distinguished by their crestless head, olive-gray back, and white throat with a blue outline. Their head, tail, and wings are blue. Scrub-jays are usually solitary birds but occasionally feed in pairs. Where jay habitat is adjacent to an orchard, however, several dozen may invade the trees daily, forming almost continuous lines moving to and from trees.

Scrub-jays are classed as a migratory nongame bird and may only be removed under permit from the U.S. Fish and Wildlife Service.

## Sparrow

White-crowned and golden-crowned sparrows cause damage in California. Both are about 6 to 7 inches long. White-crowned sparrows have a distinct pink or yellowish bill, erect posture, gray throat and breast, and a visible crown streaked with black and white. Their call is a clear whistle. Golden-crowned sparrows are similar, except they have no white head stripes. A golden-yellow central crown stripe is prominent with black borders. Their call is three to five clear whistles. Overall, golden-crowned sparrows are less numerous and cause fewer problems than white-crowned sparrows.

Crowned sparrows are migratory, nongame birds, and can only be lethally removed with a depredation permit from the U.S. Fish and Wildlife Service or under supervision of the local county agricultural commissioner.

The house sparrow is a small (approx. 6 inches), stocky songbird with short legs and a thick bill. Male house sparrows have a black throat and white cheeks. The male has a reddish back and black bib, while the female is distinctly brown. The house sparrow is an invasive, exotic species, and as such, can be lethally removed at any time.

## DAMAGE

Several bird species including house finches, European starlings, American robins, and white-crowned sparrows may cause substantial damage by feeding on ripening fruit; other less common bird pests include California quail (*Callipepla californica*), mourning doves (*Zenaida macroura*), ring-necked pheasant (*Phasianus colchicus*), scrub-jays, and wild turkeys (*Meleagris gallopavo*).

House finches are typically much more numerous and problematic than white-crowned sparrows. Starlings are typically more numerous and damaging than robins.

- House finches and white-crowned sparrows peck at grapes and berries damaging the fruit.
- European starlings and American robins remove the entire grape or berry; they also can puncture lower berries with their feet.
- In grapes, additional damage occurs when juice drips on other grapes, resulting in a buildup of secondary organisms and bunch rot.

## MANAGEMENT

### Biological Control

Natural predators such as raptors and bobcats will feed on some of the smaller bird species, although these numbers mean little for controlling such bird pests.

### Cultural Control

#### *Habitat modification*

Always consider habitat modification as a first step for controlling bird pests.

- Look for and eliminate brush or pruning piles, stacks of irrigation pipes, piles of boxes, etc., where birds may rest and nest.
- Consider removing roosting trees along perimeters to reduce bird invasion into fields.

However, there are few situations when habitat modification can be used to control high bird numbers. As such, alternative control methods will likely be needed.

### *Exclusion*

[Netting](#) is often used only for high value crops. In grapes and berry crops, netting can be used to exclude most damaging bird pests. It is the most effective method for reducing damage to these crops, but is also expensive.

Be sure to extend netting to the ground and tie off all ends to stop birds from entering underneath.

### Monitoring and Treatment Decisions

Count birds weekly to help you determine when damage will occur so you can take action early. This is particularly important to reduce damage to fruiting buds and newly sprouted row crops.

1. Watch for bird movement into or within the field.
2. Keep track of species, numbers, and location if you have had substantial damage in the past.

3. As fruit begins to ripen or as the nuts develop, look for fruit or nuts that are damaged or that have been knocked from the tree or vine.

These records will help you plan control strategies in advance and assess the effectiveness of previous control actions.

### ***Frightening devices***

Frightening devices can deter some species (e.g., crowned sparrows, crows, magpies, starlings), but are less effective for others (e.g., horned larks, house finches, house sparrows, robins, scrub-jays).

The most effective way to frighten birds from a field is to use a combination of [noisemakers](#) and [visual repellents](#) such as mylar streamers and "scare-eye" balloons. For example, [scare-eye balloons](#) may be attached to trees or posts that are next to electronic distress call devices. This combination may increase effectiveness over using either approach by itself. For maximum effectiveness, rotate from one type of frightening device to another and do not use one combination of devices for more than a week; otherwise, birds will become used to it.

Common noisemakers include roving patrols of [bird bombs](#) and shell crackers. Stationary devices such as gas cannons and electronic distress calls also provide relief. These stationary devices are most effective when you have at least 1 device per 5 acres and when they are elevated above the canopy.

Regardless of the approach used, pay attention to bird responses when using frightening devices. When birds no longer respond negatively to a specific approach, you must switch to a different frightening tactic to continue to scare birds out of the field. At best, an appropriate rotation of frightening devices will control bird pests for a few weeks. Therefore, only use these scare-tactics when needed to prevent birds from habituating to these auditory and visual repellents. Additionally, once birds become accustomed to feeding in a field, frightening tactics become much less effective. Therefore, have frightening devices ready to implement before damage occurs so that birds can be deterred right at the onset of damage.

### ***Falconry***

A growing body of evidence indicates that the use of falconry is an effective management option for grape and berry crops, and likely has similar utility in field crops as well. Falcons are typically flown for several hours during morning and late afternoon or early evening hours, although this can be modified given bird activity. The falcons are not typically allowed to attack crop-damaging birds, but rather serve to frighten birds out of desired areas.

Although somewhat expensive, they are typically less expensive than exclusion through netting and may serve as a good alternative to more traditional frightening devices and netting.

### ***Shooting***

Birds that invade orchards in small numbers, such as scrub-jays and magpies, can often be controlled by shooting. Check with California Department of Fish and Wildlife, U.S. Fish and Wildlife Service, and county agricultural commissioner officials before shooting any birds as depredation permits are often needed.

Where permissible, occasionally shooting at a few birds will increase the effectiveness of your noisemaking techniques, especially if noise makers go off at the same times as the actual shots, because birds will begin associating loud noises with the real hazards of firearms.

### ***Trapping***

Trapping can be an effective way to control house finches, house sparrows, crowned sparrows, and starlings, especially if conducted over a relatively large area such as several orchards or vineyards. The most effective trap for these species is the modified Australian crow trap.

Successful trapping must take into account the behavior patterns of the birds being controlled. These traps use live birds as decoys to attract additional birds. Therefore, place traps in suitable locations with adequate food, water, shade, and roost locations to keep the trapped birds alive.

Trapping is best carried out by someone experienced with the technique. For house finches and crowned sparrows, trapping must be conducted under supervision of the county agricultural commissioner.

Trapped birds are usually euthanized through the use of a CO<sub>2</sub> chamber. Leave some birds alive to serve as future decoys.

### ***Repellents***

Chemical repellents rely on objectionable tastes, odors, or learned aversions to deter birds from consuming or damaging fruit.

Commercial repellents containing the active ingredient methyl anthranilate are currently registered for use in some crops. This repellent has been shown to effectively reduce bird damage to several fruit species in some studies, while showing little efficacy in others. Efficacy is likely influenced by the availability of alternative food sources and ability of the user to apply the repellent following the label recommendations. In some situations, methyl anthranilate may provide some relief for small orchards although overall efficacy is uncertain. If you decide to use methyl anthranilate, be sure to carefully read the label as California restrictions are different than most other states.

### ***Precautions***

**Vertebrates**

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